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ABSTRACT

This manual presents a physical fitness screening test for fourth through twelfth grade students in New York. Norms, originally developed in 1962 and updated in 1975, are also presented. The Physical Fitness Screening Test is an individual performance-type test composed of four different test items--agility, strength, speed, and endurance. Included in the manual, which is designed for use by physical education teachers, are: (1) description of the test; (2) general directions; (3) testing procedures; (4) interpreting the test scores; (5) using the test results; and (6) test development notes. (CB)

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Bureau of Physical Education and Safety Services
Albany, New York 12234

THE NEW YORK STATE PHYSICAL FITNESS SCREENING TEST

For Boys and Girls Grades 4–12

(1984 Revision)

A Manual for Teachers of Physical Education

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT
BUREAU OF PHYSICAL EDUCATION AND SAFETY SERVICES
ALBANY, NY 12234

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FOREWORD

Since the restandardization of the New York State Physical Fitness Screening Test in 1975, a concern has developed in the State and nation that students are not receiving the kind of physical fitness education and training that are needed to maintain a strong, agile, and well-conditioned body. Physical participation attitudes and habits that are formed in early years are likely to persist into adulthood. Therefore, schools must provide evaluation procedures to identify physically underdeveloped students and must provide physical education programs designed to improve those students' physical fitness.

The New York State Physical Fitness Screening Test is one of several evaluation instruments designed to assess the physical health and fitness of students. The American Alliance of Health, Physical Education, Recreation, and Dance (AAHPERD) "Youth Fitness Test," a six-item test used by the President's Council on Physical Fitness and Sports, or the AAHPERD "Lifetime Health Related Physical Fitness Test," a four-item test, may also be used to assess physical fitness of students. A special Departmental recognition award – the NEW YORK FIT badge – may be presented to students in your community who obtain certain scores on these tests (see page vi).

The original norms of this test were obtained in 1962 and revised in 1975. This manual contains an updated set of norms that are more representative of the current student population than were the previous norms. The development of the new norms was made possible through the cooperation of administrators in 48 public and nonpublic school districts. The Bureau of Physical Education and Safety Services and the Division of Educational Testing in the State Education Department cooperated in implementing the restandardization project.

NEW YORK FIT AWARD

The NEW YORK FIT Award is designed to recognize those students who have achieved a high level of physical fitness. The award may be issued to students in New York State schools who satisfy one of the following requirements:

- Score at or above the 7th achievement level for the total physical fitness component of the New York State Physical Fitness Screening Test; or
- Score at or above the 80th percentile on all items of the American Alliance of Health, Physical Education, Recreation and Dance (AAHPERD) "Youth Fitness Test," a six-item test used by the President's Council on Physical Fitness and Sports; or
- Score at or above the 80th percentile on all items of the AAHPERD "Lifetime Health Related Physical Fitness Test," a four-item test.

In order to receive fitness award badges, school districts should submit the number of students who qualified on the basis of one of the three tests, along with the name of the test used, to the Director, Division of Pupil Health and Fitness, New York State Education Department, Washington Avenue, Albany, New York 12234. The cost of the badges will be borne by the school district. The bill for the badges will be forwarded to the district from the Education Department's official supplier at the time of shipment. If you have any questions concerning this award, please write to the Division of Pupil Health and Fitness or call (518) 474-3796.

DESCRIPTION OF THE TEST

This section of the manual presents a brief statement of the purpose of the test, its general features, and what it measures.

Purpose

The New York State Physical Fitness Screening Test was designed to provide a means of identifying physically underdeveloped pupils. It provides school districts with a valid, reliable, and administratively feasible instrument that may be utilized to appraise quickly the physical fitness status of pupils in grades 4 through 12. It is hoped that this test, when used as a part of the total school evaluation program, will be helpful in planning educational programs based on pupil needs, and that it will be of value in measuring the outcomes of such programs.

Although the test is specifically intended for use in identifying physically underdeveloped pupils, it may also be used to meet other needs of a supervisory or an instructional nature. If the results are interpreted with caution, general estimates of status and progress in physical fitness can be obtained for individual pupils. The results can be used as a motivating device for the pupil, as a diagnostic aid for the teacher, and as a source of objective information for the parent.

General features

The Physical Fitness Screening Test is an individual performance-type test composed of four different test items. In addition to a total physical fitness score, the test provides four part scores indicating relative strengths and weaknesses in four basic components of physical fitness. The test has been designed so that teachers can test a large number of pupils in a minimum amount of time with little or no equipment and supplies. In most instances it is possible to administer the entire test in an average secondary school period. The only equipment and supplies needed are a stopwatch, Indian clubs or markers, masking tape or paint for marking lines, scorecards, and enough pencils for half of the pupils in a class.

The four components measured are agility, strength, speed, and endurance. A brief description of the test items used to measure each component follows.

Agility: The *sidestep* is used to measure agility. Starting from a center line, the pupil sidesteps alternately first left then right across two outside lines 8 feet apart. The pupil is scored on the number of lines crossed in 10 seconds.

Strength: The *sit-up* (flexed-knee) is used to measure strength. Starting from the long lying position on the back, the pupil performs by raising the upper part of the body forward far enough to touch the elbows to the knees and then returns to the starting position. The score is the number of sit-ups completed in one minute.

Speed: The *dash* is used to measure speed. The pupil runs laps around two markers. The number of laps varies for different grade levels, and the score is the amount of time to the nearest half-second.

Endurance: The *squat-thrust* is used to measure endurance. Starting from the erect standing position, the pupil performs the usual four-position exercise. The score is the number of squat-thrusts completed in a given time, which varies for different grade levels.

Separate norms in the form of achievement levels are provided for the total physical fitness score and for each component score for boys and for girls in each of grades 4 through 12. The norms are based on the performance of pupils at the beginning of the school year—October or November—and the test should be used by schools at that time. However, in programs where fall administration is impossible, a school may prefer to obtain general estimates of pupil status by administering the test at a more convenient time and interpreting the norms accordingly.

What the test measures

The New York State Physical Fitness Screening Test provides a minimum standard for the measurement of a pupil's general physical fitness on the basis of four independent components of physical fitness that show relatively little interdependence. Certain of the test items do measure something in addition to the components they represent. For example, the sit-ups, a measure of strength, also reflect some endurance because they involve a repeated action. However, the fact that a test item is not a pure measurement of a component does not impair the value of the test. The primary emphasis in this test is upon total physical fitness, and the sum total of the

component scores should provide an adequate basis for identifying physically underdeveloped pupils.

Scores on the Screening Test may be used as an indication of the ability of pupils to sustain vigorous physical activity. Generally, pupils who do well on the test may be expected to participate in vigorous physical activity for longer periods with less fatigue than pupils who score low on the test. High test results also imply that a pupil has the potential to utilize muscular efforts for effective movement patterns. This is an important aspect of fitness. Although the pupil with basic strength and endurance tends to have an advantage in physical activity over those who lack these qualities, it is even more important that the pupil have the potential to use strength and endurance in situations which demand coordinated muscular effort.

It should be emphasized that this is not a medical test. High scores do not attest to the soundness of the functioning organs within the body. Scientists have demonstrated that some persons with heart lesions and other types of organic disabilities are able to score well on physical fitness tests. Furthermore, although the high fitness score does indicate that the pupil can sustain physical exertion, this in no way indicates that such a strenuous activity is desirable. For this reason, pupil participation in physical education should be based upon both a medical examination and the results of an approved physical fitness test.

In no case should this test be given to pupils whose medical status is questionable.

The seven-item physical fitness test

The New York State Physical Fitness Test has been developed for use by schools that have sufficient time, facilities, and equipment to administer a more thorough diagnostic appraisal of physical fitness. It is an individual performance-type test composed of seven different test items. The seven components of physical fitness measured by the test are posture, accuracy, strength, agility, speed, balance, and endurance. Further information on this test may be obtained from the Bureau of Physical Education and Safety Services (518: 474-5820).

GENERAL DIRECTIONS

This section of the manual contains general information on the materials to be used in recording and reporting test results, the time requirements, and the organization for testing. Careful planning and adequate orientation of pupils before administration of the test will help to insure reliable test results.

Forms for recording test results

A *Pupil Scorecard* is provided for each pupil. The heading of the scorecard provides space to record the pupil's name, grade, and school; the date of the testing; the teacher's name; and other information such as the pupil's age, height, and weight. The pupil keeps the card during the testing, and the raw score for each component is recorded on the card as the pupil completes each test item. Spaces are also provided on this card for recording the achievement level for each component, the total physical fitness score, and its achievement level.

A *Cumulative Record Chart* is provided for each pupil. This form contains spaces for recording the scores obtained by a pupil in each of grades 4 through 12. Profile charts for each testing period are also provided on the form. The cumulative record simplifies the analysis of a pupil's strengths and weaknesses in the various components of physical fitness and the observation of changes in physical fitness status from one testing period to another.

A *Class Record Sheet* provides a convenient record of a class's performance on the test. This form contains spaces for recording the achievement level on each component for each pupil in the class and for computing the average achievement level on each component for the class as a whole. On the form there is also a profile chart on which the class averages on each component can be compared with those of pupils at the same grade level throughout the State.

Time requirements

All four items on the test can be administered to a class of 30 to 40 pupils within 30 minutes. The amount of time needed for each class will depend upon the number of running lanes available for the speed test and the amount of supervision required by the pupils.

Secondary school pupils should be able to perform the four items on a self-testing basis under the general supervision of one teacher, with pairs of pupils alternating as scorers and performers. Elementary school pupils may require more immediate supervision. Assistance from classroom teachers and high school pupils would help expedite the administration of the test for pupils in grades 4 through 6.

The actual testing time can be shortened if each test item is explained and demonstrated during a class period prior to the testing period. This will give pupils a better understanding of the test and an opportunity to practice any item with which they may be unfamiliar. Additional time may be saved by having each pupil complete the heading of the pupil scorecard during this orientation period.

Sequence and total time for administering the test items

All four test items are to be administered to each pupil tested during one class period. Because a pupil's performance on one test item may be affected by fatigue from performing previous items, it is essential that each pupil perform the test items in the order listed on the pupil scorecard: sidestep, sit-up, dash, and squat-thrust. Any deviation from this sequence will seriously affect the validity and reliability of the test results.

Pupil organization during testing

Since the test items for the three components of agility, strength, and endurance can be administered to half a class at one time, the class should be divided into two groups for testing these three components. Each pupil in the first group should be paired with a pupil in the second group, and the pupils should alternate as performers and scorers. When the pupils in the first group perform, the pupils in the second group should record their scores. When the pupils in the first group complete the test items, performers and scorers change places and the test item is repeated.

For testing the component of speed, there should be a scorer at the finish line of each running lane. The rest of the pupils line up at the side of the gymnasium while waiting for their turn to run the dash.

TESTING PROCEDURES

The specific directions for setting up the testing stations and for administering and scoring each test item are presented in this section. The procedures given for each test item must be followed exactly. The four test items must be given in the order presented and in one class period.

Importance of uniform testing procedures

A test is defined as a work sample performed under uniform conditions. The results of this test are to be interpreted on the basis of test norms, and it is essential, therefore, that the specific directions and procedures be followed exactly. Obviously, if some pupils are given a longer time to perform a test item, or if they are given special help or consideration during the test, their test scores will not be comparable with the test scores of other pupils who did not have such special advantages. Similar lack of comparability will result if pupils are handicapped by being given insufficient time or an inadequate explanation of what they are to do. Scoring errors or failure to maintain scoring standards will also invalidate the test results. Therefore, it is very important that each pupil participating in this testing program be made thoroughly familiar with the testing procedures for the total test and each of its parts.

The agility test

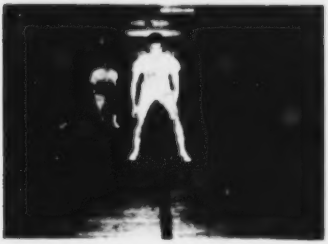
The sidestep is the test item used to measure agility (Figure 1).

a. Equipment and Testing Station

1. Masking tape for marking floor lanes (approximately 1 inch wide)
2. Stopwatch

a. Starting position

b. Sidestep to left across left outside line



c. Sidestep to right across center line

d. Sidestep to right across right outside line

e. Sidestep to left across center line

FIGURE 1—The Agility Test

Construct the number of individual testing stations required to permit the testing of half of the class at one time. An individual testing station consists of a set of three parallel lines, each approximately 5 feet in length. The distance from the middle of the center line to the outer borders of the outside lines should be 4 feet. The outer borders of the outside lines will then be 8 feet apart.

b. Organization

The teacher has pairs of pupils take their places at the area designated for the sidestep with one pupil ready to perform and the other pupil ready to keep score. The teacher, with stopwatch in hand, calls out the start and finish of the time interval for the entire class. Each scorer counts and records the score for the other pupil. Then each scorer becomes a performer while the other pupil counts and records the score.

After all the pupils have completed the sidestep, they take their places in pairs ready for the sit-up.

c. Procedure

The pupil being tested takes a standing position astride the center line with feet parallel to the line.

At the command "Ready—Go," the pupil sidesteps to the left until the left foot completely crosses the line on the pupil's left and touches the floor on the outside of the line. This counts one point. The pupil then sidesteps back to the right across the center line. This counts one point. The pupil continues to the right until the right foot completely crosses the line on the pupil's right and touches the floor outside the right-hand line. This counts one point. The pupil next sidesteps back to the left and continues to sidestep back and forth as rapidly as possible. When the time is up, the command "Stop" should be given.

The sidestepping may be done in any manner as long as the feet do not cross over one another and as long as the feet point in a direction parallel to the lines on the floor. The shoulders and hips must not turn or twist.

d. Time Limits and Scoring

The time limit for all grades is *10 seconds*.

One point is counted each time the pupil crosses *one* of the three lines: left, center, or right. The pupil's raw score is the total number of line crossings in 10 seconds.

The strength test

The sit-up (flexed-knee) is the test item used to measure strength (Figure 2).

a. Equipment and Testing Station

A stopwatch is the only equipment necessary.

The testing stations set up for the agility test may also be used for this test.

b. Organization

The teacher has pairs of pupils take their places at the testing stations. As in the sidestep, the teacher acts as the starter and timer while the pupils act alternately as performers and scorers.

After all the pupils have completed the sit-up, they take their places in the squads ready for the dash.

c. Procedure

The pupil being tested takes the long lying position on the back with the knees bent, feet on the floor and heels not more than 12 inches from the buttocks. The angle at the knees should be less than 90 degrees. The fingers are interlaced and placed behind the neck. The pupil's partner, who is the scorer, kneels and holds the performer's ankles. The scorer keeps the feet of the performer in touch with the floor and counts each successful sit-up.

At the command "Ready-Go," the performer tightens the abdominal muscles and curls up, bringing the head and elbows forward, finally touching the elbows to the knees. The performer then returns to the starting position.

One complete sit-up is counted each time the performer returns to the starting position. If the performer fails to touch the elbows to the knees, a foul is committed and the sit-up does not count. Also, no score is allowed if the performer fails to return to the starting position at the completion of each sit-up. When the time is up, the command "Stop" should be given. Only complete sit-ups should be scored.

d. Time Limits and Scoring

The time limit for all pupils in grades 4 through 12 is *1 minute*. The pupil's raw score is the total number of sit-ups successfully completed in the given time.

a. Starting position

b. Elbows to knees

c. Return to starting position

FIGURE 2—The Strength Test
(Sit-up with flexed knee)

The speed test

The dash is the test item used to measure speed.

a. Equipment and Testing Station

1. Stopwatch
2. Objects that may be used as turning markers, such as Indian clubs

For each testing station there should be room for a scorer and a running course with unobstructed space beyond the start and finish lines. Several running courses should be laid out with a distance of 45 feet between each pair of turning markers. If space and equipment permit, at least four testing stations should be provided for a class of 30 to 40 pupils. Figure 3 shows the arrangement of stations for speed testing for pupils in grades 4 through 12. To insure maximum safety and performance, the following steps are recommended:

1. Mark the start and finish lines clearly. Indian clubs or rubber cones are suggested. Do not use metal rods, sticks, or any other objects that may cause injury to the runner.
2. Leave at least 14 feet of unobstructed space beyond the start and finish lines so that pupils will be able to run at top speed past the finish line without danger of running into the gymnasium wall or colliding with other pupils.
3. Leave at least 6 feet of unobstructed space between the marker and the gymnasium wall at the turning end of the course to give pupils sufficient running room around the marker.
4. Make sure that there is at least 10 feet between running stations so that pupils will not collide as they run the courses.
5. Keep everyone but the performer and scorer away from the running lane and the start and finish lines to avoid any interference with the runner.

b. Organization

The teacher has all the pupils except the scorers line up at the side of the gymnaisum where they will not interfere with the runners. The scorers take their places near the finish line.

The first pupil to run in each line takes a standing position at the starting line. The teacher stands near the finish line in order to be heard by the scorers. At a signal from the teacher, the pupil in each lane starts to run. As each pupil finishes, the scorer notes and re-

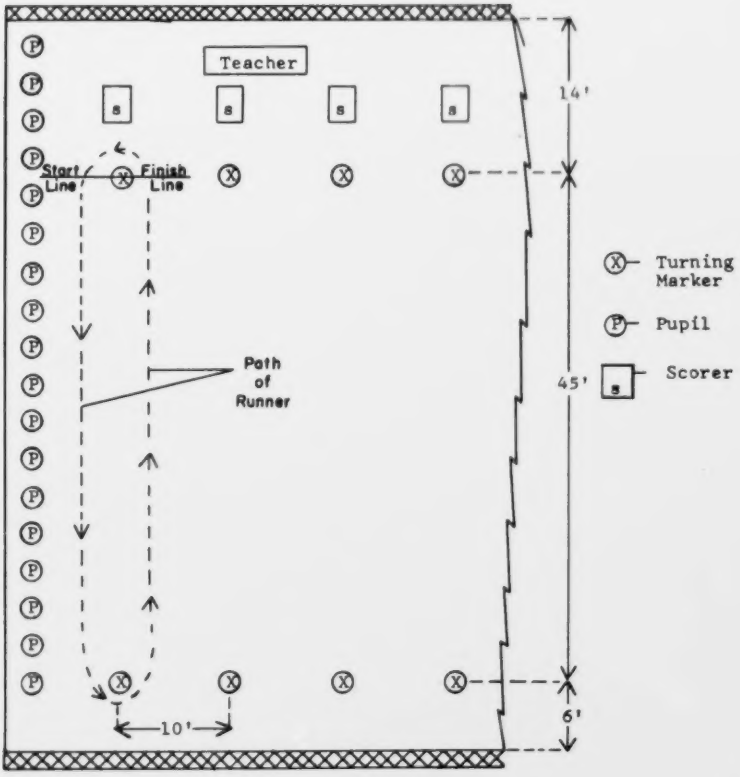


FIGURE 3

Arrangement of Stations for Speed Test
Grades 4–12

cords the time on the pupil's scorecard. The runners then take places at the end of the line at the side of the gymnasium, and the teacher has the next pupils take their places at the starting lines. This is repeated until all pupils except the scorers have run. The teacher then appoints new scorers while the regular scorers run.

If there are enough stopwatches so that there can be one at each running lane, the scorers can act as timers while the teacher acts as the starter. The scorer starts the watch at the teacher's starting signal and stops it when the pupil in the scorer's lane crosses the finish line. As soon as all the scorers have read their watches and recorded the scores on the pupil scorecards, they reset the watches and await the teacher's signal for the next pupil in each lane to start running.

If there are not enough stopwatches available or if the scorers cannot use the watches properly, the teacher acts as starter and timer. The teacher stands near the finish line and reads the stopwatch aloud. The time should be called out distinctly and accurately with the proper inflection. The word "five" should be used to indicate the half-second. That is, the teacher calls, "*seven*—five—*eight*—five—*nine*—five," etc. The scorer records the score in decimals: for example, the score of a pupil finishing in 11 seconds would be recorded as 11.0; the score of another pupil finishing in 11½ seconds would be recorded as 11.5.

After all the pupils have completed the dash, they take their places in pairs ready for the squat-thrust.

c. Procedure

At the command "Ready—Go," the pupil being tested starts behind one marker, runs around the opposite marker, and returns to run around the marker at the starting point. The pupil should make each turn around a marker counterclockwise. If the performer knocks down either turning marker during the course of his run, he has committed a foul and must run the course again after a sufficient rest period. (A sufficient rest period is considered to be the same amount of time that elapsed between the end of the sit-ups and the start of the first speed attempt.)

Since many inexperienced runners tend to slow up as they approach the finish line, the teacher should encourage all pupils to run through the finish line.

d. Distance and Scoring

All pupils in grades 4 through 6 will run 2 laps for a total distance of 60 yards. All pupils in grades 7 through 12 will run 3 laps for a total distance of 90 yards.

The pupil's raw score is the time to the nearest half-second that it takes to run the distance indicated for the pupil's grade group.

Example

Actual Time	*Recorded Time*
10.0	10.0
10.1	10.0
10.2	10.0
10.3	10.5
10.4	10.5
10.5	10.5
10.6	10.5
10.7	10.5
10.8	11.0
10.9	11.0
11.0	11.0

The endurance test

The squat-thrust is the test item used to measure endurance (Figure 4).

a. Equipment and Testing Station

A stopwatch is the only equipment necessary.

The testing stations set up for the agility test may also be used for this test.

b. Organization

The teacher has pairs of pupils take their places at the testing stations. As in the sidestep and sit-up, the teacher acts as the starter and timer while the pupils act alternately as performers and scorers.

c. Procedure

The pupil being tested takes the erect standing position (position a) of attention. The scorer stands at the side of the performer in order to observe the profile view.

At the command "Ready—Go," the performer bends the knees and places the hands on the floor. The arms may be between or outside of the bent knees (position b). Then the performer extends the legs backward, keeping the arms and body straight as in the pushup position (position c). The performer next returns to the squat position (position d) and then to the erect starting position (position e).

One complete squat-thrust is counted each time the performer returns to the starting position of the four-position exercise. The performer is not allowed to stop and rest between squat-thrusts. If the performer does not assume each of the four positions during one cycle of the four-count exercise, a foul is committed and the squat-thrust does not count. When the time is up, the command "Stop" should be given.

d. Time Limits and Scoring

The time limit for all pupils in grades 4 through 6 is *30 seconds*. The time limit for all pupils in grades 7 through 12 is *1 minute*.

The pupil's raw score is the total number of squat-thrusts that are successfully completed in the given time.

a. Erect starting position

b. Squat position

c. Legs back position

d. Return to squat position

e. Return to erect starting position

FIGURE 4—The Endurance Test

INTERPRETING THE TEST SCORES

This section of the manual describes the method for converting the raw scores to achievement level units through the use of norm tables, gives the procedure for computing a total physical fitness score, and explains the use of the profile chart on the cumulative record form.

Description of the test norms

Raw scores on this test indicate a pupil's performance without indicating how well he or she performs in comparison with others. In order to compare one component score with another, and in order to be able to add the component scores into a single physical fitness score, it is necessary to convert the raw scores to a common unit of measurement. Raw scores on each of the test items can be converted to common units of measurement by referring to the tables of norms at the end of this manual. Two types of normative information are provided—achievement levels and their percentile equivalents. There are separate tables of norms for boys and for girls beginning each of grades 4 through 12. These tables offer a basis for comparing pupil scores with those of pupils in comparable grades throughout the State.

The achievement level norms represent 11 equal units along a theoretical scale of physical fitness in the same way that inches represent 12 equal units along a 1-foot scale of distance. The amount of difference in physical fitness is the same from any one achievement level to the next. The average achievement level is 5, and the high and low extremes are 10 and 0, respectively. Achievement level norms in this test, as do norms on other tests, take the shape of a normal distribution with the result that the scores cluster more about the mean or average score than at any other point on the scale. About 50 percent of the scores made by any normal group of pupils will occur at achievement levels 4, 5, and 6. About 25 percent of the scores will occur above these levels, at levels 7 through 10; and about 25 percent will occur below, at levels 0 through 3.

The percentile equivalent of a score is the percentage of all scores which that score exceeds. Since a score is high if it surpasses many other scores and low if it surpasses only a few, the percentile equiva-

lent provides a basis for interpreting the quality of a score. In this test the percentile equivalent is useful in understanding and interpreting achievement levels. The percentile equivalents corresponding to each achievement level are indicated in the norm tables. For example, an achievement level of 7 has a percentile equivalent of 84. This means that, on the average, a pupil with a raw score at level 7 surpasses 84 percent of the pupils in his or her particular grade and is surpassed by 16 percent of them.

How to convert the raw scores to achievement levels

The achievement levels for the various raw scores on the physical fitness screening test are listed in tables 5 through 22 at the end of this manual. The first and last columns in each table list the achievement levels; the second column lists the equivalent raw scores for each component and for total physical fitness. To obtain the achievement level for a pupil's raw score, there are three steps: (1) refer to the table for the appropriate sex and grade; (2) find the raw score value in the appropriate column; (3) read the corresponding achievement level at the right or left of the table.

Suppose, for example, that a girl beginning eighth grade obtained a raw score of 16 on the agility component of the screening test. To find the achievement level of that score, refer to the table of norms for Girls—Beginning Grade 8. This is table 14 on page 38. Find the raw score of 16 in the column headed Agility. The achievement level in the first or last column that corresponds to this raw score is 5. The percentile rank in the second column that refers to this raw score is 50. Thus a girl beginning eighth grade who obtained a raw score of 16 on the agility component would be at achievement level 5 and at the 50th percentile on that component. The same procedure is used for each of the screening test components.

The total physical fitness score and physical fitness level

The total physical fitness score is the sum of the achievement levels for the four components of the screening test. This score can be converted into a physical fitness level in the same way that the raw scores for the components are converted into achievement levels. Suppose, for example, that a boy starting fifth grade obtained the following raw scores: agility—14; strength—27; speed—15.0;

endurance—17. The achievement levels for each of these components would be 5, 4, 6, and 6, respectively. This pupil's total physical fitness score would be the sum of these four achievement levels, or 21. To determine the physical fitness level for this total score, find the score 21 in the column headed Total Physical Fitness in the table of norms for Boys—Beginning Grade 5. (It is included in the interval 19–21.) This score is at achievement level 5 and has a percentile rank of 50.

Minimum standards of physical fitness

A pupil whose physical fitness level is 3 or less should be considered physically underdeveloped. Such pupils should be required to participate in special developmental activities designed to improve their physical fitness status. The teacher also may wish to administer the seven-component New York State Physical Fitness Test to these pupils as an aid in planning a program of instruction to meet their needs.

Finding the achievement level for a class

Class record sheets are provided for making a convenient record of the achievement levels of all pupils in a class and for estimating the achievement level for a class as a whole.

To estimate the achievement level of a class, compute either the median achievement level or the arithmetic average of the achievement levels for each of the components and for total physical fitness. The median is that achievement level below and above which half the pupils in the class are found. Either the median or the mean (arithmetic average) can be considered as an indication of the standing of the average pupil in the class and thus can be used as a rough estimate of the physical fitness of the class. Detailed information on how to compute a median or a mean can be obtained from any elementary text on tests and measurements.

If the median or mean achievement level for each of the components and for total physical fitness is computed to one decimal place, the table of percentile equivalents in appendix A may be used to interpret the results. Suppose, for example, that the mean total physical fitness score for a class of eighth-grade boys is 6.5. Reference to appendix A indicates that an achievement level of 6.5 has a percentile equivalent of 77. Therefore, the average pupil in this class

has attained a level of physical fitness which exceeds that attained by 77 percent of the eighth-grade boys in the State.

Use of the cumulative record chart

A cumulative record chart is provided on which to retain an individual pupil's scores in consecutive testing periods from grades 4 through 12. This record form also contains a series of profiles, one for each testing period. Each profile indicates relative strengths and weaknesses in the four components as well as status in total physical fitness. The series of completed profiles will also show progress or lack of progress from one testing period to the next. The shaded area on the profile charts represents the levels attained by the middle 50 percent, or average group, of New York State pupils in the grade. The white portion below and above the shaded area represents the physical fitness levels of pupils in the upper and lower quarters of the grade.

The solid black line printed across the profile charts just above achievement level 3 is at the 25th percentile and represents the minimum standard of performance for total physical fitness and for each of the four test components. Any pupil who scores below this percentile for total physical fitness is recognized as being physically underdeveloped. Any pupil who scores below this percentile for any one of the components is identified as being below the desirable level in that test item.

The first step in drawing the profile on the cumulative record chart is to indicate the physical fitness level for the pupil's total score by drawing a solid horizontal line across the profile at the appropriate place on the achievement level scale. This line shows the status of the pupil in respect to overall physical fitness. Next, to obtain a picture of the relative strengths and weaknesses in the pupil's physical fitness pattern, plot the achievement level for each of the four components on the vertical lines. Then, complete the profile by connecting the four points with a solid heavy line. If the mean or median achievement level for total physical fitness has been computed for the pupil's class or grade, this can be shown on the profile chart as another horizontal line. However, the line used to indicate it should be dotted or of a different color so as to differentiate it from the pupil's physical fitness level.

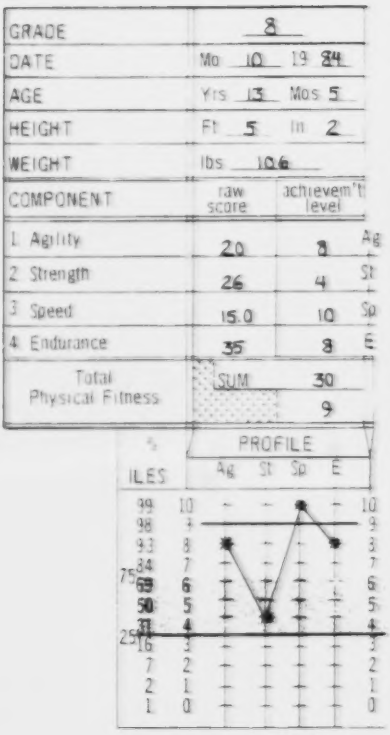


FIGURE 5
Illustrative Profile Chart

The use of the pupil profile is illustrated in figure 5. The straight line across this profile for an eighth-grade girl indicates that her physical fitness level, as measured by this test, is well above average. Her component profile indicates she is above average in all components except strength, in which she is average. In terms of percentile rank, her total physical fitness surpasses that of 98 percent of the girls in the eighth grade in New York State, while her strength surpasses that of only 31 percent.

It is interesting to note that all but one of her component achievement levels are below her total physical fitness achievement level. In most tests, approximately half of the achievement levels for the parts of a test would be expected to fall above the achievement level for the total test and approximately half below this level. This would be especially true if there was a high degree of relationship among the parts of the test. In the Physical Fitness Screening Test, however, there is a rather low relationship or correlation among the component tests. Only the exceptional pupil will obtain high scores in a majority of them; and a pupil with three out of four component scores in the upper quarter often will rank in a higher achievement level for total fitness than for most of the components.

USING THE TEST RESULTS

Proper use of this test implies full realization of its purpose and limitations. It means using the test only for the purpose for which it is intended and applying good judgment in interpreting the information provided by the test scores. Finally, it means placing the test scores in their proper perspective as only one of the types of evaluative information in the total school appraisal program.

What the test results indicate

The Physical Fitness Screening Test provides a means for identifying physically underdeveloped pupils. In addition, the test provides four specific types of information, each of which can be used in evaluation of both individual pupil performance and the average performance of classes, grades, or other school groupings.

First, the test results offer a basis for comparing a pupil's general physical fitness status at the time of testing with that of a representative group of New York State pupils of the same sex and grade. For example, the eighth-grade girl whose scores are given in figure 5 obtained a raw score of 30 in total physical fitness. This raw score becomes meaningful only when it is converted to an achievement level of 9, which indicates that her physical fitness level is well above average and is better than 98 percent of the eighth-grade girls throughout the State. Similar comparisons can be made for each of the four components of the test.

Second, the test results provide a basis for comparing a pupil's performance on one component of the test with the pupil's performance on another. The eighth-grade girl's raw score of 20 on the agility test does not indicate either superiority or lack of it over her score of 26 on the strength test. However, by comparing her achievement level of 4 on the strength test with her achievement level of 8 on the agility test, it is apparent that her performance on the agility test was much better than her performance on the strength test.

Third, the test results provide a basis for comparing a pupil's achievement in total physical fitness and in each of the four components with that of other pupils in the same class or school. An achievement level of 5 places a pupil in the average classification in

respect to other pupils on a statewide basis. However, if the achievement levels of most of the pupils in a class are above 5, then a pupil with an achievement level of 5 would be below average in respect to the average level of achievement in the class.

Fourth, the test results provide an indication of the amount of progress in total physical fitness and in each of the four components. Normal progress is indicated when a pupil on repeated testings continues to obtain scores which place the pupil at the same achievement level. If a pupil scores at the fourth achievement level in fifth grade and at the fourth achievement level in sixth grade, the pupil may be considered to have made normal progress, since the same relative position has been maintained in relation to the other pupils with whom comparisons are being made. If the pupil scores at the fifth achievement level or higher in the sixth grade, the pupil may be considered to have made above-average progress. Similarly, if the pupil scores at the third achievement level or below, the pupil may be considered to have made below-average progress.

It is interesting to note that equal improvement in component raw scores does not indicate equivalent amounts of progress. Amount of progress can be determined only through the use of achievement levels. Suppose, for example, that a boy in the ninth grade obtained a raw score of 26 on the strength test and a raw score of 23 on the endurance test; and that in the tenth grade his raw scores on these tests were 28 and 25, respectively. In both components his raw score in the tenth grade was two points higher than that in the ninth grade. Although for the strength test he was at the same achievement level in both grades, for the endurance test he was at achievement level 3 in the ninth grade and at achievement level 4 in the tenth grade. Thus, in this instance an increase of two points in raw score indicates average progress in one component and above average progress in another.

Specific functions served by the test

The specific function of this test is the identification of physically underdeveloped pupils so that adapted programs designed to improve the physical fitness of such pupils may be planned and instituted.

Testing at the beginning of the year also will help to indicate the amount of time all pupils need to spend in vigorous physical activities in relation to other program objectives. Testing at the begin-

ning of the following year will then indicate whether or not the pupils, after participating in the total physical education program for a full year, have developed or maintained a desirable level of physical fitness. If they have, the program would seem to be accomplishing its purposes in respect to physical fitness. If not, possible implications for program adjustment may be revealed. Lack of program effectiveness may be due to such factors as improper choice of activities, insufficient instruction or time, or inadequate facilities or equipment. It may also be due to other factors directly related to the pupils, such as their health status, home environment, or interest in the program.

It is important to remember that the results of this screening test are valid and reliable for classifying the pupils' physical fitness status only into the three broad categories of above average, average, or below average. They should not be used as a basis for finer distinctions. The test results may be useful as a guide in assigning pupils to physical education classes and for grouping pupils within a class. Where individual pupils are found to have extremely low physical fitness scores, further investigation is indicated. Such a followup may point to a need for medical referral or for special work beyond the regular physical education program. Similarly, extremely high physical fitness scores may indicate the need for an enriched activity program.

The use of this test may have a desirable motivational effect upon pupils. It is suggested that, whenever possible, pupils be allowed to convert their own raw scores to achievement levels and to plot their own profile charts. This can be done quite simply by reproducing the appropriate table of norms from the manual so that the pupils can have copies. As pupils compare their own grades, they are provided with an excellent opportunity for self-evaluation of their strengths and weaknesses in physical fitness.

This test also provides a convenient and easily understood means for supplying parents with information concerning the physical fitness of their children. A duplicate copy of the pupil's cumulative record chart can be made for the pupil to take home with an accompanying letter similar to the one suggested in appendix B.

Test scores as estimates

The results of every test, no matter how comprehensive it may be, are subject to error. This screening test consists of a sample of

pupil performance based on a limited sample of items selected to measure only four components of physical fitness. Variations in pupils' scores could result from errors of measurement or errors in sampling. In addition, even the best test may give an invalid picture of a pupil's physical fitness status if that pupil is improperly motivated, fatigued, disturbed, or otherwise unable to function at maximum efficiency. For these reasons, the test scores should be regarded as estimates. They are indicative rather than conclusive, and they should never constitute the sole basis for important educational decisions.

Tests and the evaluation of teaching

Tests provide additional information to be considered along with a large number of factors in the total school situation. Any test of physical fitness, and especially a screening test, necessarily measures only part of the desirable outcomes or objectives of physical education teaching. Pupil attitudes, knowledge, satisfactions, appreciations, skills, habits, and similar factors are largely disregarded. Hence the total product of the physical education program, or the total effectiveness of any individual teacher, cannot be evaluated solely on the basis of the results of this test.

Teaching for the test

It is poor pedagogy to teach for a test. Teaching specifically for any given test not only impairs the validity of the results, but also tends to constrict course curriculum and objectives. Teachers should concentrate on teaching a sound, well-rounded instructional curriculum in physical education, regardless of what is contained in any particular test or measuring instrument. It would be unfortunate indeed if this test, or any other test, were to supplant teacher judgment in determining the scope and emphasis of physical education instruction.

TEST DEVELOPMENT NOTES

The preceding sections of this manual provide instructions for administering the Physical Fitness Screening Test and for interpreting the test results. For those interested in the technical development of the test, this section presents further details concerning the selection of the components and test items and the development of the test norms.

Selection of components and test items

In the development of the New York State Physical Fitness Test and the selection of its seven components, a fund of research data on the components of physical fitness was collected. After a careful study of this research material, four components of physical fitness were selected for use on the New York State Physical Fitness Screening Test. These four components—agility, strength, speed, and endurance—are important indicators of the pupil's capacity to perform physically and of his or her ability to run, jump, dodge, and perform many other fine-gross motor skills.

The specific purpose of the screening test is to provide schools with a measuring instrument that requires little or no equipment, that can be administered in one class period, and that will give a rough estimate of the pupils' physical fitness status. Therefore, the test items considered for each component were evaluated on the basis of their validity, reliability, and ease of administration, including such factors as the amount of time, type of equipment, and number of personnel required. The final choice of the test items to measure the four components of physical fitness was made as follows:

1. *Agility:* The boomerang and the sidestep ranked highest in validity and reliability. When weighed against the criterion of administrative feasibility, the sidestep ranked distinctly higher. The boomerang test must be run individually by each pupil, and each test averages 15 seconds, while the sidestep can be administered to one-half of the class in 10 seconds.

2. *Strength:* Pullups and bar dips ranked almost equally high in validity and reliability but did not satisfy the criterion of administrative feasibility. The pushup also was not used because of the many

problems in scoring it. The sit-up, although not as valid a measure as the pullups, bar dips, and pushups, was selected because it is a measure of dynamic strength and because it adequately met the three criteria.

3. *Speed:* The shuttle run ranked highest in validity and reliability but was discarded because it required the construction and placement of shuttles which are not standard school equipment. The dash was chosen because of its high rank in validity, reliability, and administrative feasibility. Since this test item is to be given indoors, the turning in a closed course has added some agility to it.

4. *Endurance:* The 440-yard run ranked highest in reliability and validity but did not meet the administrative criterion because of the time and space required. Therefore, the squat-thrust, which ranked high in validity and reliability, was chosen on the basis of administrative ease.

Three of the test items were revised in 1975 in order to increase the validity of the test items for the current student population and to simplify the administration of the items. The running distances for the speed test item and the time limits for the endurance test item were revised so that they are the same for both girls and boys. The strength test item was revised in two ways. The straight-knee sit-up was replaced with the flexed-knee sit-up, which is a more accurate measure of the strength of the abdominal muscles, and one time limit was established for all students.

Restandardization procedure

The 1983 norms for the Physical Fitness Screening Test were obtained by administering the test to a stratified random sample of 25,165 pupils in 18 public school districts and 30 nonpublic schools. Since the sampling technique used for these norms differs significantly from that used for the 1975 norms, comparisons of the results from the two normings are inappropriate.

Stratification of the sample occurred at two levels. First the State was divided into 13 geographic regions. Each region was represented in proportion to its contribution to total State enrollment based upon 1981-82 enrollment data. Then, within these geographic regions, stratification was done by public/nonpublic and by minority representation.

All students in grades 4 through 12 were tested in the participating public school districts and nonpublic schools. Students were then randomly selected for inclusion in the norming sample. The norming

TABLE 1

Number of Pupils Used as Basis for the Physical Fitness Screening Test Norms

Grade	Boys	Girls	Total
4	1,465	1,465	2,930
5	1,379	1,426	2,805
6	1,477	1,432	2,909
7	1,481	1,479	2,960
8	1,401	1,329	2,730
9	1,376	1,341	2,717
10	1,425	1,422	2,847
11	1,350	1,347	2,697
12	1,210	1,360	2,570
All grades combined	12,564	12,601	25,165

target was to include approximately 10% of the total statewide enrollment at each grade level.

The test was generally administered by physical education staff, but in some instances by other classroom teachers. Group meetings were held throughout the State by staff of the Bureau of Physical Education and Safety Services in an attempt to insure the uniformity of administration and the accuracy of results. The testing began in September 1983 and was completed in November 1983. The total number of pupils in each grade that were used as a basis for establishing the norms is given in Table 1.

Development of test norms

The first step in the determination of the 1983 norms for the Physical Fitness Screening Test was to check the score distributions of each component for any variations from the expected normal curve. No inherent lack of normality in the population distributions was indicated.

Achievement levels were established by converting the component raw scores and the total physical fitness score to C scores. The total physical fitness scores were computed from the component achievement levels of each pupil individually. These achievement levels, since they are expressed in C-scale units, represent equal units in the components measured, based on the assumption of normal distributions. In numbering the achievement levels, the range of 0 to 10 was used rather than a range of 1 to 11, because it was felt that the

number 10 as the highest level would be better understood than the number 11, and that an achievement level of 0 would not be inappropriate for the lowest 1 percent of the pupils.

In converting the raw scores to achievement levels, fluctuations away from an expected progression of raw scores from grade to grade were found. Since these fluctuations appeared to be due to sampling errors, appropriate adjustments were made through the use of routine smoothing procedures.

After the development of the 1983 norms was completed, it was noted that the performance of the boys on each of the four tests and of the girls on the agility test improved steadily from grade to grade. However, the same was not true for the girls on the other three tests. The performance of the girls on the strength test improved steadily from grade 4 to grade 8, decreased for grade 9, and then remained virtually constant through grade 12. On the speed test, the performance of the girls improved steadily from grade 4 to grade 6. The performance remained virtually constant for grades 7-9, and then decreased for grade 10 and remained virtually constant through grade 12. On the endurance test, the performance of the girls was virtually constant for grades 4 through 6 and grades 7 and 8. The performance decreased for grade 9 and then increased for grade 10 and remained virtually constant through grade 12.

To provide a basis for determining an appropriate minimum level of physical fitness, a random statewide sample of experienced physical education instructors was asked to indicate what they would consider to be the minimum satisfactory raw score for each of the four test items. There was close agreement on the minimum raw scores among the 302 instructors in the sample. When the raw scores of the pupils in the norms population were grouped by grade and sex, these minimum raw scores generally were found to be at or near the 25th percentile. It was, therefore, decided that for this screening test the 25th percentile would best represent the minimum standard of performance for total physical fitness and for each of the four test components.

Intercorrelation of components

The intercorrelations between the various component scores and between each component score and the total physical fitness score are presented in Table 2. These are based on the scores made by boys and girls tested in the sixth, eighth, and tenth grades in the fall of 1983.

TABLE 2

Intercorrelations of Component and Total Physical Fitness Scores

Component Score	Sixth-grade Boys (N = 1,477)				Sixth-grade Girls (N = 1,432)			
	Strength	Speed	Endurance	Total Physical Fitness	Strength	Speed	Endurance	Total Physical Fitness
Agility	.42	.17	.26	.67	.49	.31	.33	.72
Strength		.29	.42	.76		.38	.45	.79
Speed			.31	.63			.40	.70
Endurance				.68				.71
	Eighth-grade Boys (N = 1,401)				Eighth-grade Girls (N = 1,329)			
Component Score	Strength	Speed	Endurance	Total Physical Fitness	Strength	Speed	Endurance	Total Physical Fitness
Agility	.27	.30	.23	.63	.32	.33	.23	.63
Strength		.20	.48	.71		.29	.43	.76
Speed			.15	.62			.17	.63
Endurance				.68				.67
	Tenth-grade Boys (N = 1,425)				Tenth-grade Girls (N = 1,422)			
Component Score	Strength	Speed	Endurance	Total Physical Fitness	Strength	Speed	Endurance	Total Physical Fitness
Agility	.40	.48	.36	.75	.31	.46	.30	.73
Strength		.41	.39	.73		.31	.40	.70
Speed			.38	.74			.24	.70
Endurance				.71				.67

The correlations between each component score and the total physical fitness score range from .62 to .79. These correlations indicate that each of the component test scores makes a substantial contribution to the determination of the total physical fitness score.

The correlations between the components range from .16 to .49. In general, the low correlations between component scores indicate that each component measures a relatively independent function and makes a unique contribution to the total test.

Reliability of the physical fitness screening test

To estimate its reliability, the Physical Fitness Screening Test was administered twice during the fall of 1983 with approximately three

TABLE 3

Reliability Coefficients and Standard Errors of Measurement for Boys

Test Item	Grade	N	Mean	Standard Deviation	r	SE_m
Agility	6	823	14.14	3.16	.69	1.8
	8	753	16.56	3.97	.81	1.7
	10	496	17.57	4.54	.67	2.6
Strength	6	823	29.80	9.74	.79	4.4
	8	753	37.43	9.51	.89	3.1
	10	496	39.38	8.33	.83	3.5
Speed	6	823	14.87	1.67	.82	0.7
	8	753	21.19	2.78	.91	0.8
	10	496	21.88	2.23	.79	1.0
Endurance	6	823	14.09	3.92	.66	2.3
	8	753	27.22	7.99	.85	3.1
	10	496	29.25	7.58	.77	3.7
Total	6	823	18.59	5.30	.81	2.3
	8	753	20.02	5.60	.89	1.9
	10	496	18.66	6.15	.86	2.3

weeks between testing, to a sample of 4,530 pupils in grades 6, 8, and 10 in 21 public and nonpublic school districts in the State. The test-retest reliability coefficients for total and part scores are reported in table 3 for boys and table 4 for girls.

Raw score standard errors of measurement are given in the last column of each table. These standard errors can be interpreted in terms of the corresponding ranges of achievement levels and percentile ranks by referring to the tables of achievement level norms. The means, standard deviations, and standard errors of measurement reported in the tables are based upon the pupils' raw scores on the first administration of the test.

TABLE 4

Reliability Coefficients and Standard Errors of Measurement for Girls

Test Item	Grade	N	Mean	Standard Deviation	r	SE_m
Agility	6	799	12.91	3.82	.83	1.6
	8	647	15.65	3.19	.75	1.6
	10	1011	16.03	4.20	.59	2.7
Strength	6	799	24.16	9.88	.84	3.9
	8	647	31.02	9.86	.89	3.2
	10	1011	30.84	8.53	.83	3.6
Speed	6	799	15.92	1.91	.79	0.9
	8	647	23.24	2.85	.90	0.9
	10	1011	24.60	2.60	.64	1.6
Endurance	6	799	13.52	3.78	.71	2.0
	8	647	23.90	8.13	.83	3.4
	10	1011	23.21	7.03	.81	3.0
Total	6	799	18.31	5.87	.87	2.2
	8	647	19.72	5.67	.87	2.1
	10	1011	19.84	5.74	.84	2.3

TABLES OF ACHIEVEMENT LEVEL NORMS

TABLE 3

Boys—Beginning Grade 4

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	20+	52+	11.0−	31+	33+	10
9	98	18-19	45-51	11.5-13.0	27-30	30-32	9
8	93	17	40-44	13.5-14.0	21-26	28-29	8
7	84	16	35-39	14.5	18-20	25-27	7
6	69	14-15	31-34	15.0	16-17	22-24	6
5	50	13	25-30	15.5-16.0	14-15	19-21	5
4	31	11-12	21-24	16.5	12-13	17-18	4
3	16	9-10	15-20	17.0-17.5	10-11	13-16	3
2	7	7-8	9-14	18.0-18.5	7-9	10-12	2
1	2	5-6	3-8	19.0-20.0	4-6	8-9	1
0	1	0-4	0-2	20.5+	0-3	0-7	0

TABLE 6

Girls—Beginning Grade 4

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	19+	49+	11.5−	28+	34+	10
9	98	18	42-48	12.0-13.0	24-27	31-33	9
8	93	16-17	37-41	13.5-14.0	20-23	28-30	8
7	84	15	32-36	14.5-15.0	18-19	25-27	7
6	69	14	27-31	15.5-16.0	16-17	22-24	6
5	50	12-13	22-26	16.5	14-15	19-21	5
4	31	11	17-21	17.0-17.5	12-13	16-18	4
3	16	9-10	13-16	18.0-18.5	10-11	13-15	3
2	7	7-8	7-12	19.0-19.5	7-9	10-12	2
1	2	4-6	1-6	20.0-21.0	4-6	8-9	1
0	1	0-3	0	21.5+	0-3	0-7	0

TABLE 7

Boys—Beginning Grade 5

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	21+	55+	11.0–	32+	33+	10
9	98	19-20	48-54	11.5-12.5	28-31	31-32	9
8	93	18	43-47	13.0-13.5	23-27	28-30	8
7	84	17	38-42	14.0	19-22	25-27	7
6	69	15-16	33-37	14.5-15.0	17-18	22-24	6
5	50	14	29-32	15.5	15-16	19-21	5
4	31	12-13	24-28	16.0-16.5	13-14	16-18	4
3	16	10-11	19-23	17.0	10-12	13-15	3
2	7	7-9	13-18	17.5-18.5	7-9	10-12	2
1	2	6	6-12	19.0-20.0	4-6	7-9	1
0	1	0-5	0-5	20.5+	0-3	0-6	0

TABLE 8

Girls—Beginning Grade 5

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	20+	49+	11.5–	29+	33+	10
9	98	19	43-48	12.0-12.5	24-28	31-32	9
8	93	17-18	39-42	13.0-14.0	20-23	28-30	8
7	84	16	34-38	14.5	18-19	25-27	7
6	69	14-15	29-33	15.0-15.5	16-17	22-24	6
5	50	13	24-28	16.0	14-15	19-21	5
4	31	11-12	19-23	16.5-17.0	12-13	16-18	4
3	16	10	14-18	17.5-18.0	10-11	13-15	3
2	7	8-9	8-13	18.5-19.5	7-9	10-12	2
1	2	5-7	1-7	20.0-20.5	4-6	7-9	1
0	1	0-4	0	21.0+	0-3	0-6	0

TABLE 9

Boys—Beginning Grade 6

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	23+	55+	10.5−	33+	32+	10
9	98	21-22	50-54	11.0-11.5	29-32	30-31	9
8	93	19-20	45-49	12.0-13.0	24-28	27-29	8
7	84	17-18	40-44	13.5	19-23	25-26	7
6	69	16	35-39	14.0-14.5	17-18	22-24	6
5	50	15	30-34	15.0	15-16	19-21	5
4	31	13-14	25-29	15.5	13-14	16-18	4
3	16	11-12	20-24	16.0-16.5	11-12	13-15	3
2	7	9-10	14-19	17.0-17.5	8-10	10-12	2
1	2	6-8	7-13	18.0-18.5	4-7	7-9	1
0	1	0-5	0-6	19.0+	0-3	0-6	0

TABLE 10

Girls—Beginning Grade 6

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	21+	51+	11.0−	29+	33+	10
9	98	19-20	44-50	11.5-12.5	24-28	30-32	9
8	93	18	39-43	13.0-13.5	20-23	28-29	8
7	84	17	34-38	14.0-14.5	18-19	25-27	7
6	69	15-16	30-33	15.0	16-17	22-24	6
5	50	14	25-29	15.5	14-15	19-21	5
4	31	12-13	20-24	16.0-16.5	12-13	16-18	4
3	16	10-11	15-19	17.0-17.5	10-11	13-15	3
2	7	8-9	10-14	18.0-19.0	8-9	10-12	2
1	2	6-7	2-9	19.5-20.5	4-7	6-9	1
0	1	0-5	0-1	21.0+	0-3	0-5	0

TABLE 11

Boys—Beginning Grade 7

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	25+	60+	18.5–	44+	33+	10
9	98	22-24	55-59	19.0	40-43	30-32	9
8	93	21	50-54	19.5-20.0	36-39	28-29	8
7	84	19-20	44-49	20.5-21.0	32-35	25-27	7
6	69	17-18	40-43	21.5-22.0	30-31	22-24	6
5	50	16	34-39	22.5-23.0	26-29	20-21	5
4	31	14-15	30-33	23.5	23-25	16-19	4
3	16	12-13	25-29	24.0-25.0	19-22	13-15	3
2	7	9-11	20-24	25.5-26.5	14-18	11-12	2
1	2	7-8	14-19	27.0-28.0	10-13	8-10	1
0	1	0-6	0-13	28.5+	0-9	0-7	0

TABLE 12

Girls—Beginning Grade 7

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	23+	52+	16.5–	43+	32+	10
9	98	21-22	46-51	17.0-18.0	38-42	30-31	9
8	93	19-20	41-45	18.5-20.5	33-37	27-29	8
7	84	18	36-40	21.0-22.0	29-32	25-26	7
6	69	16-17	32-35	22.5-23.0	26-28	22-24	6
5	50	15	28-31	23.5-24.0	23-25	19-21	5
4	31	13-14	23-27	24.5-25.0	20-22	16-18	4
3	16	11-12	18-22	25.5-26.5	16-19	13-15	3
2	7	9-10	12-17	27.0-28.5	11-15	10-12	2
1	2	7-8	11-14	30.0-31.5	4-10	8-9	1
0	1	0-6	0-10	32.0+	0-3	0-7	0

TABLE 13

Boys—Beginning Grade 8

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	26+	61+	18.5−	45+	32+	10
9	98	24-25	56-60	19.0	41-44	30-31	9
8	93	22-23	51-55	19.5	37-40	28-29	8
7	84	20-21	46-50	20.0	34-36	25-27	7
6	69	18-19	42-45	20.5-21.0	30-33	22-24	6
5	50	17	37-41	21.5-22.0	27-29	19-21	5
4	31	15-16	32-36	22.5-23.0	23-26	16-18	4
3	16	13-14	27-31	23.5-24.0	19-22	13-15	3
2	7	10-12	21-26	24.5-25.5	14-18	10-12	2
1	2	7-9	15-20	26.0-27.5	11-13	7-9	1
0	1	0-6	0-14	28.0+	0-10	0-6	0

TABLE 14

Girls—Beginning Grade 8

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	23+	56+	16.0−	43+	32+	10
9	98	21-22	50-55	16.5-18.0	39-42	30-31	9
8	93	20	43-49	18.5-20.5	34-37	27-29	8
7	84	18-19	39-42	21.0-21.5	31-33	25-26	7
6	69	17	35-38	22.0-22.5	27-30	22-24	6
5	50	16	31-34	23.0-23.5	23-26	19-21	5
4	31	14-15	26-30	24.0-25.0	20-22	16-18	4
3	16	11-13	21-25	25.5-26.5	16-19	14-15	3
2	7	9-10	16-20	27.0-28.0	11-15	11-13	2
1	2	7-8	12-15	28.5-29.5	5-10	8-10	1
0	1	0-6	0-11	30.0+	0-4	0-7	0

TABLE 15
Boys—Beginning Grade 9

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	27+	62+	18.5−	45+	33+	10
9	98	26	58-61	19.0	41-44	31-32	9
8	93	22-25	53-57	19.5	37-40	28-30	8
7	84	21	48-52	20.0	34-36	25-27	7
6	69	19-20	44-47	20.5	30-33	22-24	6
5	50	18	40-43	21.0-21.5	27-29	19-21	5
4	31	16-17	35-39	22.0-23.0	24-26	16-18	4
3	16	14-15	31-34	23.5-24.0	21-23	13-15	3
2	7	10-13	24-30	24.5-25.5	17-20	11-12	2
1	2	8-9	20-23	26.0-27.5	12-16	8-10	1
0	1	0-7	0-19	28.0+	0-11	0-7	0

TABLE 16
Girls—Beginning Grade 9

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	24+	54+	16.0−	40+	32+	10
9	98	23	48-53	16.5-18.0	35-39	30-31	9
8	93	21-22	43-47	18.5-20.5	31-34	28-29	8
7	84	19-20	39-42	21.0-21.5	28-30	25-27	7
6	69	18	34-38	22.0-22.5	25-27	22-24	6
5	50	16-17	29-33	23.0-23.5	21-24	19-21	5
4	31	14-15	24-28	24.0-25.0	18-20	16-18	4
3	16	12-13	20-23	25.5-26.5	15-17	13-15	3
2	7	10-11	14-19	27.0-28.0	12-14	10-12	2
1	2	8-9	10-13	28.5-29.5	8-11	8-9	1
0	1	0-7	0-9	30.0+	0-7	0-7	0

TABLE 17

Boys — Beginning Grade 10

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	27+	63+	18.5−	47+	33+	10
9	98	25-26	59-62	19.0	42-46	31-32	9
8	93	24	53-58	19.5	39-41	28-30	8
7	84	22-23	50-52	20.0	35-38	26-27	7
6	69	20-21	44-49	20.5	31-34	22-25	6
5	50	18-19	40-43	21.0	28-30	19-21	5
4	31	16-17	35-39	21.5-22.0	25-27	16-18	4
3	16	14-15	31-34	22.5-23.5	21-24	13-15	3
2	7	11-13	26-30	24.0-25.5	17-20	10-12	2
1	2	9-10	22-25	26.0-27.0	12-16	7-9	1
0	1	0-8	0-21	27.5+	0-11	0-6	0

TABLE 18

Girls — Beginning Grade 10

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	25+	53+	20.5−	41+	34+	10
9	98	24	47-52	21.0	37-40	31-33	9
8	93	21-23	42-46	21.5	32-36	28-30	8
7	84	19-20	38-41	22.0	29-31	25-27	7
6	69	18	33-37	22.5-23.5	25-28	22-24	6
5	50	16-17	30-32	24.0-24.5	22-24	19-21	5
4	31	14-15	25-29	25.0-26.0	19-21	16-18	4
3	16	12-13	21-24	26.5-28.0	15-18	13-15	3
2	7	10-11	15-20	28.5-29.5	12-14	11-12	2
1	2	8-9	11-14	30.0-31.5	8-11	9-10	1
0	1	0-7	0-10	32.0+	0-7	0-8	0

TABLE 19

Boys — Beginning Grade 11

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	29+	66+	18.0−	47+	33+	10
9	98	26-28	60-65	18.5	44-46	30-32	9
8	93	24-25	55-59	19.0	40-43	28-29	8
7	84	22-23	50-54	19.5	37-39	25-27	7
6	69	21	46-49	20.0	33-36	22-24	6
5	50	19-20	41-45	20.5-21.0	30-32	19-21	5
4	31	17-18	36-40	21.5-22.0	27-29	16-18	4
3	16	15-16	32-35	22.5-23.0	23-26	13-15	3
2	7	12-14	27-31	23.5-24.5	20-22	10-12	2
1	2	9-11	23-26	25.0-26.5	14-19	7-9	1
0	1	0-8	0-22	27.0+	0-13	0-6	0

TABLE 20

Girls — Beginning Grade 11

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	25+	53+	19.5−	41+	34+	10
9	98	24	47-52	20.0-20.5	37-40	31-33	9
8	93	21-23	42-46	21.0-21.5	32-36	28-30	8
7	84	20	38-41	22.0	29-31	25-27	7
6	69	18-19	33-37	22.5-23.5	25-28	22-24	6
5	50	16-17	30-32	24.0-24.5	22-24	19-21	5
4	31	15	25-29	25.0-26.0	19-21	16-18	4
3	16	12-14	21-24	26.5-27.5	15-18	13-15	3
2	7	10-11	15-20	28.0-29.5	12-14	11-12	2
1	2	8-9	11-14	30.0-31.0	8-11	8-10	1
0	1	0-7	0-10	31.5+	0-7	0-7	0

TABLE 21

Boys—Beginning Grade 12

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	29+	70+	17.5−	48+	35+	10
9	98	27-28	63-69	18.0	45-47	31-34	9
8	93	25-26	57-62	18.5	41-44	28-30	8
7	84	23-24	51-56	19.0-19.5	38-40	25-27	7
6	69	21-22	47-50	20.0	34-37	22-24	6
5	50	20	42-46	20.5	31-33	19-21	5
4	31	18-19	38-41	21.0-21.5	27-30	16-18	4
3	16	15-17	33-37	22.0-22.5	24-26	13-15	3
2	7	13-14	29-32	23.0-24.0	20-23	10-12	2
1	2	10-12	23-28	24.5-25.5	16-19	7-9	1
0	1	0-9	0-22	26.0+	0-15	0-6	0

TABLE 22

Girls—Beginning Grade 12

Achievement Level	Percentile Rank	Agility	Strength	Speed	Endurance	Total Physical Fitness	Achievement Level
10	99	26+	54+	19.0−	41+	35+	10
9	98	24-25	49-53	19.5-20.0	37-40	32-34	9
8	93	22-23	44-48	20.5-21.5	33-36	28-31	8
7	84	20-21	39-43	22.0	29-32	25-27	7
6	69	18-19	34-38	22.5-23.5	25-28	22-24	6
5	50	16-17	30-33	24.0-24.5	22-24	19-21	5
4	31	15	25-29	25.0-26.0	19-21	16-18	4
3	16	13-14	21-24	26.5-27.5	15-18	13-15	3
2	7	10-12	16-20	28.0-29.5	12-14	10-12	2
1	2	8-9	12-15	30.0-31.0	9-11	8-9	1
0	1	0-7	0-11	31.5+	0-8	0-7	0

APPENDIX A

The following table of percentile equivalents may be used for interpreting the achievement of a class, as described on page 20.

Percentile Equivalents of Class Achievement Levels

Achievement Level	Percentile Equivalent	Achievement Level	Percentile Equivalent
9.4 and above	99	5.0	50
9.0 — 9.3	98	4.9	48
8.7 — 8.9	97	4.8	46
8.4 — 8.6	96	4.7	44
8.2 — 8.3	95	4.6	42
8.1	94	4.5	40
8.0	93	4.4	38
7.9	93	4.3	36
7.8	92	4.2	34
7.7	91	4.1	33
7.6	90	4.0	31
7.5	89	3.9	29
7.4	88	3.8	27
7.3	87	3.7	26
7.2	86	3.6	24
7.1	85	3.5	23
7.0	84	3.4	21
6.9	83	3.3	20
6.8	82	3.2	18
6.7	80	3.1	17
6.6	79	3.0	16
6.5	77	2.9	15
6.4	76	2.8	14
6.3	74	2.7	13
6.2	73	2.6	12
6.1	71	2.5	11
6.0	69	2.4	10
5.9	67	2.3	9
5.8	66	2.2	8
5.7	64	2.1	7
5.6	62	2.0	7
5.5	60	1.9	6
5.4	58	1.7 — 1.8	5
5.3	56	1.4 — 1.6	4
5.2	54	1.1 — 1.3	3
5.1	52	0.7 — 1.0	2
		0.6 and below	1

APPENDIX B

The letter below is suggested as a basis for a form letter to be sent home by the school with a copy of the pupil's Cumulative Record Chart.

Dear Parent:

Our school district has recently administered the New York State Physical Fitness Screening Test to all pupils in grades 4 through 12. This test is an individual performance type of standardized test which provides a basis for comparing the physical fitness of your child with that of pupils in the same grade in schools throughout the State. The test measures four basic components of physical fitness—agility, strength, speed and endurance—and also provides a total physical fitness score based on these four components.

On the attached Cumulative Record Chart you will find your child's individual score on each component. In addition, you will find his (or her) test scores plotted on a profile chart. The horizontal line drawn across the profile indicates his (or her) own total physical fitness level as measured by the test.

The shaded area on the profile chart represents the scores obtained by the middle 50 percent of pupils in New York State. If your child's score is above this shaded area on the profile, he (or she) has scored in the upper 25 percent of pupils throughout the State, and if it is below the shaded area, he (or she) has scored in the lower 25 percent. If your child's scores fall in the lower 25 percent area, we would suggest that you contact his (or her) physical education teacher to discuss appropriate ways and means of improving your child's physical fitness status.

Sincerely yours,

Principal or
Physical Education Teacher